



# The Texas ELR Data System

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# A Simplified Approach





# ELR Message Mechanics

Message Creation



Message Transport



Message Consumption



# ELR Objectives

- Replace existing ELR capacities located within organization
- Consolidate
- Provide efficiencies/enhancements
- PHIN-compliance strategy



# Design Considerations

- Modular
- Use of existing components
- Allow flexibility for future upgrades or enhancements (per each module)
- Cost
- Incorporation of Best Practices



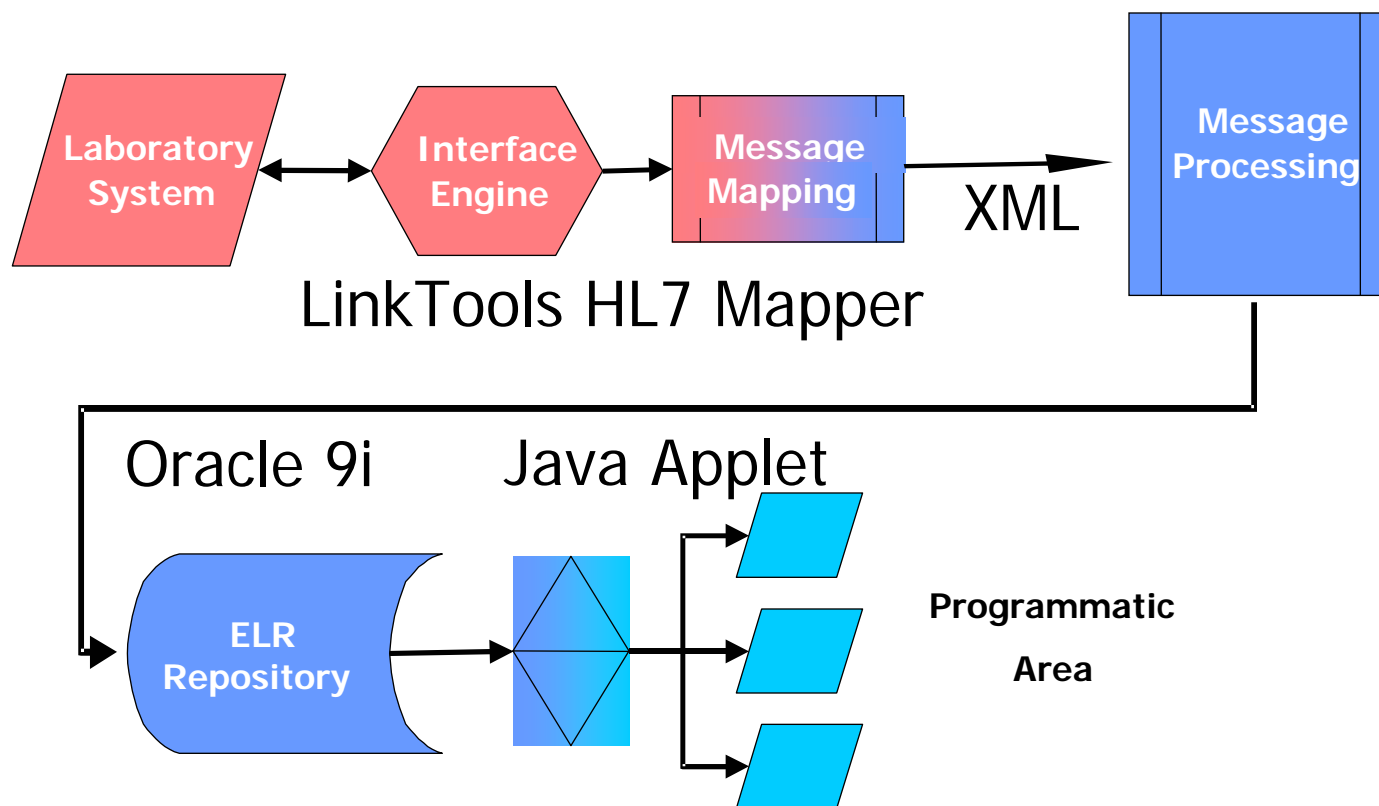
# Design Features

- Incoming data mapped to HL7 v2.3.1
- Use of NBS data model
- Output of data to legacy systems
  - ascii
  - .dbf
- Supports linking to NBS MSGIN for in-scope conditions



# Electronic Laboratory Reporting

## Message Services





# HL7 Mapper

LINKTools HL7 Mapper, E:\Incoming\Maps\labcorp.MPR

File Save Save As Global SimpleEditor

IN BOUND OUT BOUND LabCorp

Input: E:\Incoming\LABCORP\\*.HL7  
Format: HL7 Delimiters: ^&~\

Output: E:\Incoming\OutXML\\*.xml  
Format: XML Write Out Option

No DB ☒ DBASE (DBF) Password? ☐ DB Name: LINKTools DB Table: WebSelect  
Server (or localhost): OnePage: 20 Display: Edit

Segment: MSH HL7 Show All

			Write Out Length	Editable	Index	Key	Display	Field	Rules	File
<input checked="" type="checkbox"/>	1	MSH_3	SendingApplication	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
<input checked="" type="checkbox"/>	2	MSH_4_1	SendingFacilityNamespaceID	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		2
<input checked="" type="checkbox"/>	3	MSH_4_2	SendingFacilityUniversalID	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		3
<input checked="" type="checkbox"/>	4	MSH_4_3	SendingFacilityUniversalIDType	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4
<input checked="" type="checkbox"/>	5	MSH_5	ReceivingApplication	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		5
<input checked="" type="checkbox"/>	6	MSH_6	ReceivingFacility	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
<input checked="" type="checkbox"/>	7	MSH_7	MessageDateTime	26	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
<input checked="" type="checkbox"/>	8	MSH_9_1	MessageTypeID	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		8
<input checked="" type="checkbox"/>	9	MSH_9_2	TriggerEventID	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		9
<input checked="" type="checkbox"/>	10	MSH_10	MessageControlID	20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		10
<input checked="" type="checkbox"/>	11	MSH_11	ProcessingID	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		11
<input checked="" type="checkbox"/>	12	MSH_12	HL7VersionID	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		12
<input checked="" type="checkbox"/>	13	PID_1	SetIDPatientID	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		13
<input checked="" type="checkbox"/>	14	PID_3_1	PatientID	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		14
<input checked="" type="checkbox"/>	15	PID_3_6	PatientIDAssigningFacility	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		15





# Processed to NBS Schema

Oracle Enterprise Manager Console, Standalone

File Navigator Object Tools Configuration Help

ORACLE Enterprise Manager

Network

- Databases
  - ELR.DISEASE.TDH -
    - Instance
    - Schema
      - CTXSYS
      - ELRAD
      - ELR
        - Tables**
          - DOWNLOADFILE
          - ELRIN\_MSH
          - ELRIN\_NTE
          - ELRIN\_OBR
          - ELRIN\_OBX
          - ELRIN\_PID
          - LABTEST\_LOINC
          - LAB\_TEST
          - LOG\_NEDSS
          - MSGIN\_ACT
          - MSGIN\_ACT\_ID
          - MSGIN\_ACT\_LOCATOR\_PARTICIPATIO
          - MSGIN\_ACT\_RELATIONSHIP
          - MSGIN\_CLINICAL\_DOCUMENT
          - MSGIN\_COMMUNICATION\_FUNCTION
          - MSGIN\_CONFIRMATION\_METHOD
          - MSGIN\_ENTITY
          - MSGIN\_ENTITY\_GROUP
          - MSGIN\_ENTITY\_ID
          - MSGIN\_ENTITY\_LOCATOR\_PARTICIPA
          - MSGIN\_INTERVENTION
          - MSGIN\_LOCAL\_UID\_GENERATOR
          - MSGIN\_MANUFACTURED\_MATERIAL
          - MSGIN\_MATERIAL
          - MSGIN\_MESSAGE
          - MSGIN\_NON\_PERSON\_LIVING\_SUBJEC
          - MSGIN\_NOTIFICATION
          - MSGIN\_OBSERVATION
          - MSGIN\_OBSERVATION\_INTERP
          - MSGIN\_OBSERVATION\_REASON
          - MSGIN\_OBS\_VALUE\_CODED
          - MSGIN\_OBS\_VALUE\_CODED\_MOD
          - MSGIN\_OBS\_VALUE\_DATE
          - MSGIN\_OBS\_VALUE\_NUMERIC
          - MSGIN\_OBS\_VALUE\_TXT
          - MSGIN\_ORGANIZATION
          - MSGIN\_ORGANIZATION\_NAME
          - MSGIN\_PARTICIPATION

Table	Tablespace	Partitioned	Rows	Last Analyzed
DOWNLOADFILE	ELR	No		
ELRIN_MSH	ELR	No		
ELRIN_NTE	ELR	No		
ELRIN_OBR	ELR	No		
ELRIN_OBX	ELR	No		
ELRIN_PID	ELR	No		
LABTEST_LOINC		No		
LAB_TEST		No		
LOG_NEDSS	ELR	No		
MSGIN_ACT	ELR	No		
MSGIN_ACT_ID	ELR	No		
MSGIN_ACT_LOCATOR_PARTICIPATIO	ELR	No		
MSGIN_ACT_RELATIONSHIP	ELR	No		
MSGIN_CLINICAL_DOCUMENT	ELR	No		
MSGIN_COMMUNICATION_FUNCTION	ELR	No		
MSGIN_CONFIRMATION_METHOD	ELR	No		
MSGIN_ENTITY	ELR	No		
MSGIN_ENTITY_GROUP	ELR	No		
MSGIN_ENTITY_ID	ELR	No		
MSGIN_ENTITY_LOCATOR_PARTICIPA	ELR	No		
MSGIN_INTERVENTION	ELR	No		
MSGIN_LOCAL_UID_GENERATOR	ELR	No		
MSGIN_MANUFACTURED_MATERIAL	ELR	No		
MSGIN_MATERIAL	ELR	No		
MSGIN_MESSAGE	ELR	No		
MSGIN_NON_PERSON_LIVING_SUBJEC	ELR	No		
MSGIN_NOTIFICATION	ELR	No		
MSGIN_OBSERVATION	ELR	No		
MSGIN_OBSERVATION_INTERP	ELR	No		
MSGIN_OBSERVATION_REASON	ELR	No		
MSGIN_OBS_VALUE_CODED	ELR	No		
MSGIN_OBS_VALUE_CODED_MOD	ELR	No		
MSGIN_OBS_VALUE_DATE	ELR	No		
MSGIN_OBS_VALUE_NUMERIC	ELR	No		
MSGIN_OBS_VALUE_TXT	ELR	No		
MSGIN_ORGANIZATION	ELR	No		
MSGIN_ORGANIZATION_NAME	ELR	No		
MSGIN_PARTICIPATION	ELR	No		



# Procedures Within Oracle

The screenshot displays the Oracle Enterprise Manager Console interface. On the left, a tree view shows the database structure, including tables like MSGIN\_PATIENT, MSGIN\_PERSON, MSGIN\_PHYSICAL, MSGIN\_PLACE, MSGIN\_POSTAL, MSGIN\_PROCED, MSGIN\_PUBLIC, MSGIN\_REFERRA, MSGIN\_ROLE, MSGIN\_SUBSTAN, MSGIN\_TELE\_LOC, MSGIN\_TRANSMIS, MSGIN\_UID\_GENI, MSGIN\_WORKUP, PLAN\_TABLE, STAGE\_MSH, STAGE\_NTE, STAGE\_OBR, STAGE\_OBX, STAGE\_PID, TX\_SRT, and TX\_SRT1. A folder named 'Views' is expanded, showing 'MASSEY2\_VIEW' highlighted in blue.

The main window shows the 'Advanced' tab for the 'MASSEY2\_VIEW' view. The 'Name' field is 'MASSEY2\_VIEW' and the 'Schema' is 'ELRDBA'. The 'Query Text' field contains a complex SQL query:

```
select distinct X.OBX_SEQ,m.msh_10_msgcid ,m.msh_3_1_sa ,
    m.msh_4_1_sf ,m.msh_4_2_sf,
    m.msh_4_3_sf, m.msh_5_rapp, m.msh_6_1_rf, m.msh_7_msgdt, m.msh_9_1_msgid ,
    m.msh_9_2_trigid, m.msh_11_1_pid,m.msh_12_versid, p.msh_10_msgcid ,p.pid_1_setid ,
    p.pid_2_idext ,p.pid_2_6_id_ef ,p.pid_3_1_idint ,p.PID_3_6_INTF ,p.PID_3_6_1_FID ,p.PID_3_6_2_F
    p.PID_5_1_LNAME ,p.PID_5_2_FNAME ,p.PID_5_3_MNAME ,p.PID_7_BIRTHDT ,p.PID_8_SEX,
    p.PID_10_RACE ,p.PID_11_1_ADDR ,p.PID_11_2_OADDR ,p.PID_11_3_CITY ,p.PID_11_4_STATE ,
    p.PID_11_5_ZIP ,p.PID_11_6_CTRY ,p.PID_13_7_HPH ,p.PID_19_SSN ,p.PID_22_ETHNIC ,
    R.msh_10_msgcid ,R.OBR_1_SETID ,R.OBR_3_ORDNO ,R.OBR_4_1_SER ,R.OBR_4_2_SERTXT,R.OBR_4_3_SERCD
    R.OBR_4_5_SRTVXT ,R.OBR_4_6_SERIDA ,R.OBR_7_OBSDT ,R.OBR_14_SPECDT ,R.OBR_15_1_1_SPCD,
    R.OBR_15_1_2_SPTXT ,R.OBR_15_4_SPSIT ,R.OBR_15_5_SPMOD ,R.OBR_16_1_PID ,R.OBR_16_2_PNAME,
    R.OBR_16_3_PFNAM ,R.OBR_16_4_PFNAM ,R.OBR_17_6_PARC ,R.OBR_25_RSLTST ,R.OBR_26_PRLT ,
    R.OBR_31_1_ID ,R.OBR_31_2_TXT ,X.msh_10_msgcid ,X.OBX_1_SETID ,X.OBX_2_VTYPE ,X.OBX_3_1_OBRID,
    X.OBX_3_3_OBRSYS ,X.OBX_3_4_OBRAID ,X.OBX_3_5_OBRATX ,X.OBX_3_6_OBRASY ,X.OBX_4_OBRSUBID ,X.OBX
    X.OBX_5_2_OBRVALTXT,X.OBX_5_3_OBRCD ,X.OBX_5_4_OBRAID,X.OBX_5_5_OBRATX ,X.OBX_6_UNITS,
    X.OBX_8_ABFLAG ,X.OBX_10_ABTEST ,X.OBX_11_OBRSLT ,X.OBX_14_DTOBR ,X.OBX_15_1_PRODID ,
    X.OBX_15_2_TXT FROM elrin_msh m ,elrin_pid p , elrin_obr R , elrin_obx X
WHERE m.MSH_SEQ=p.MSH_SEQ
AND p.PID_SEQ=R.PID_SEQ
AND R.OBR_SEQ=X.OBR_SEQ
AND X.OBX_3_4_OBRAID IN (SELECT DISTINCT LB.LAB_TEST_CD
FROM NBS_SRT.TX_CONDITION_CODE CD,NBS_SRT.LOINC_CONDITION LO,NBS_SRT.LABTEST_LOINC LB
WHERE CD.CONDITION_CD=LO.CONDITION_CD
AND LO.LOINC_CD=LB.LOINC_CD
AND CD.PROG_AREA_CD='ZCD')
```

The 'Status' field shows 'INVALID (Ln, Col): (1,1)'. The 'Aliases' field lists: 'ID','MSH\_MSGCID','MSH\_SA','MSH\_SF','MSH\_SFID','MSH\_SFIDT','MSH\_RAPP','MSH\_RFAC','MSH\_MSGDT'.

Buttons at the bottom include 'Compile', 'Show Errors', 'Apply', 'Revert', 'Show SQL', and 'Help'.



# Web-Enabled Data Access

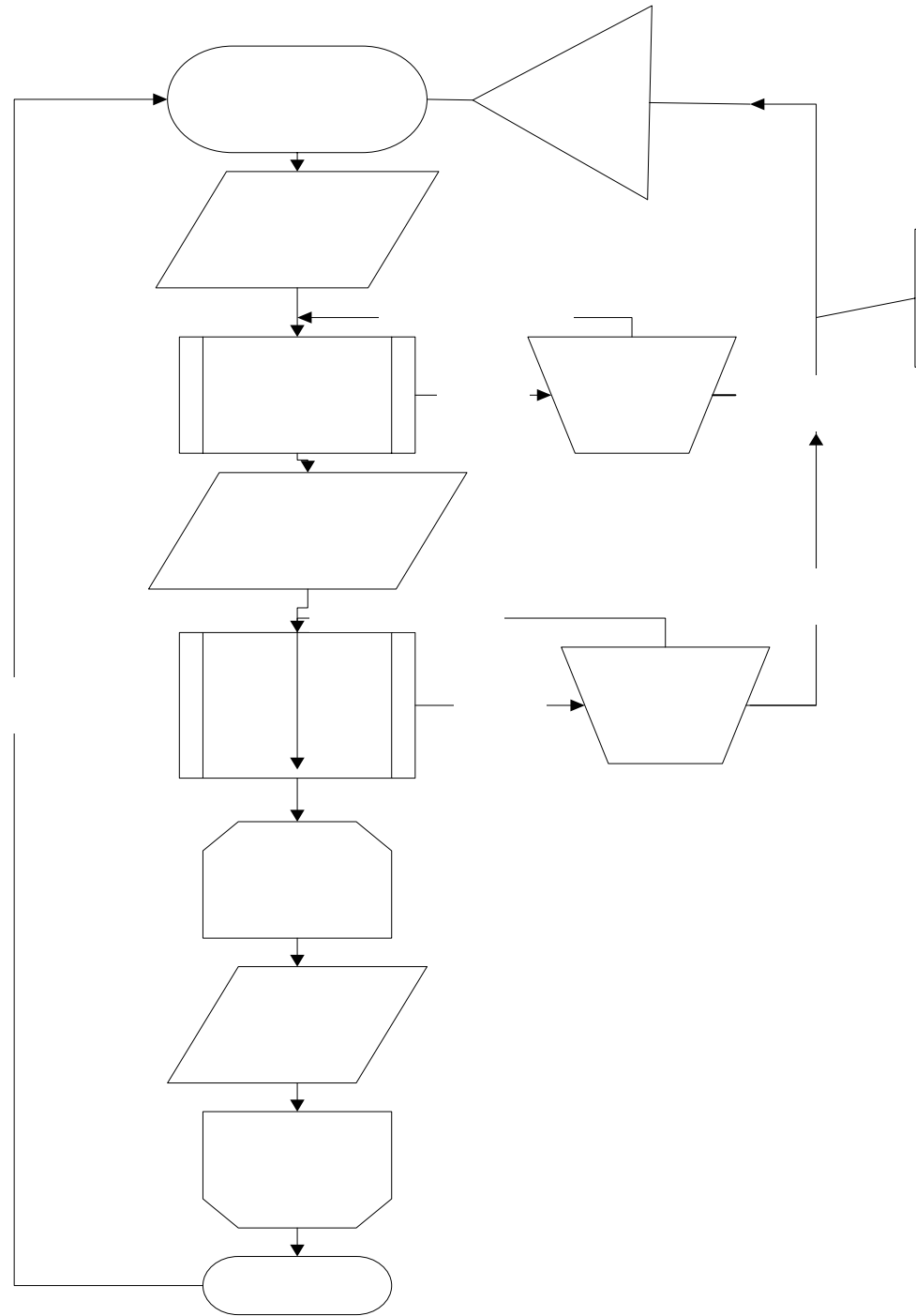
The screenshot shows a Microsoft Internet Explorer browser window titled "Login Page - Microsoft Internet Explorer". The address bar is empty. The main content area displays a login form with the heading "Please Login" in orange. Below the heading are two input fields: "Name:" and "Password:". A dashed line is positioned below the password field. A "Login" button is located below the input fields. At the bottom of the page, there is a note: "Note: for HIPAA reasons, you will be allowed to login to this application only once within a single browser session. Once you've logged in, you will not be able to log in again until you come to the end of the application and press the exit button. After you press the exit button on the last page, you will need to start a new browser session." The status bar at the bottom shows "Done" and "Internet".

**Please Login**

Name:

Password:

Note: for HIPAA reasons, you will be allowed to login to this application only once within a single browser session.  
Once you've logged in, you will not be able to log in again until you come to the end of the application and press the exit button.  
After you press the exit button on the last page, you will need to start a new browser session.





# Next Steps

- PHIN MS
- Transition to Production NBS
- More Labs
- Pathology
- Consideration for Clinical Data